

MC3116L • MC3016L,P (54H30J) (74H30J, N)



This device is an 8-input NAND gate. It is useful when processing a large number of variables, such as in encoders and decoders.





Input Loading Factor = 1 Output Loading Factor = 10 Total Power Dissipation = 22 mW typ/pkg Propagation Delay Time = 8.0 ns typ

-3.0 V

-0 V

≥2.4 V

≤0.4 V Gnd

Pin numbers for the 54H30F/74H30F device are	DEVICE						PIN	NU	MBE	RS					
shown in the chart. These devices are available on	MC3116F,L/3016F,L,P	1	2	3	4	5	6	7	8	9	10	11	12	13	14
special request.	54H30F/74H30F	9	10	2	3	5	6	11	12	1	14	7	8	13	4

## SWITCHING TIME TEST CIRCUIT AND WAVEFORMS



 $C_T$  = 25 pF = total parasitic capacitance, which includes probe, wiring, and load capacitances.

The coax delays from input to scope and output to scope must be matched. The scope must be terminated in 50-ohm impedance. The 950-ohm resistor and the scope termination impedance constitute a 20:1 attenuator probe. Coax shall be CT-070-50 or equivalent.

General Information section for packaging.

ELECTRICAL CHARACTERISTICS

Test procedures are shown for only one input of this device. To complete testing, sequence through remaining inputs in the same manner.



															-						2	INDER S & CO	LUI CONNENT VOLIAGE VALOLU						_
														0	@ Test		MM		-				-	Volts					_
														Tempe	Temperature	lor	но	_ <u>.</u> s	- q	V <sub>R</sub> V	V <sub>IH</sub> V <sub>F</sub>	V <sub>R</sub>	V <sub>RH</sub>	Vmax	Vcc	c V <sub>cct</sub>	V <sub>CCH</sub>	V <sub>IHX</sub>	
														-	-55°C	20	-2.0	,	-	1.1 2.	2.0 0.4	2.4	4.0	•	5.0	4.5	5.5		
													MC3116	~	+25°C	20	-2.0	1.0	-10 1	1.1 1.	1.8 0.4	2.4	4.0	7.0	5.0	4.5	5.5	2.5	
														+	+125°C	20	-2.0		-	0.8 1.	1.8 0.4	2.4	4.0		5.0	4.5	5.5	-	_
														-	0°C	20	-2.0	,	- 1	1.1 2.	0 0.4	2.5	4.0	i'	5.0	4.75	5.25		
													MC3016	~	+25°C	20	-2.0	1.0	-10 1	1.1 1.	1.8 0.4	2.5	4.0	7.0	5.0	4.75	5.25	2.5	
	- 1													-	+75°C	20	-2.0	,	-	0.9 1.	1.8 0.4	2.5	4.0		5.0	4.75	5.25		,
		id		W	MC3116 1	Test Limits	its			WC	3016 T	MC3016 Test Limits	2						TEST O	IRRENT	LION /	AGE APPLI	TEST CURRENT / VOLTAGE APPLIED TO PINS LISTED BELOW	ISTED B	ELOW :				
	1	Indar		-55°C	+	25°C	51+	+125°C	0	0°C	+25°C	2°C	+75°C	ĉ	-	ł	T	ł	+	$\left  \right $	-				-				-
Characteristic	Symbol	Test	2	Max	Mir	Max	2	Max	Min	Max	Min	Max	Min	Max	Unit	101	н	<u>s</u>	- 9	V <sub>II</sub> V	V <sub>IH</sub> V <sub>F</sub>	× ×	V <sub>RH</sub>	Vmax	Vcc	c V <sub>ccL</sub>	VccH	V <sub>iHX</sub>	Gnd
Input Forward Current	1F	8	-	-2.0	-	-2.0	•	-2.0		-2.0		-2.0		-2.0	mAdc				-	ŀ.		•	1, 2, 4, 5, 6, 11, 12	ŀ	<u> </u>	'	14		1
Leakage Current	IR	en l		20	•	50	•	50		50	•	50		50	μAdc					<u> </u>	<u>-</u>	e			·		14		1, 2, 4, 5, 6, 7, 11, 12
Breakdown Voltage	BVin	3	1.1	•	5.5	•	,				5.5	1			Vdc			8		-	-  -	1	•		1	•	14		1, 2, 4, 5, 6, 7, 11, 12
Clamp Voltage	vD	8	•		•	-1.5	,				•	-1.5	,		Vdc		,		e		· 			1	· _	14			L
Output Output Voltage	10 <sup>V</sup>	∞	'	0.4	·	0.4	,	0.4	•	0.4	,	0.4		0.4	Vdc	00			-				1, 2, 4, 5 6, 11, 12	'		14			-
	HO	80	2.4	•	2.4	1	2.4		2.5	•	2.5		2.5	r	Vdc		80			5		•	1, 2, 4, 5, 6, 11, 12	•	,	14	,		-
Short-Circuit Current	lsc	80	-40	-100	-40	-100	-40	-100	-40	-100	-40	-100	-40	-100	mAdc				,		·	,		1		'	14		1, 2, 3, 4, 5, 8, 8, 11, 12
Power Requirements (Total Device) Maximum Power Supply Current	Imax	14		1	1	6.5	1. No	-		ı	1	6.5	'n	ı	mAdc	· .	,				'			14	1	,			1, 2, 3, 4, 5, 7, 11, 12
Power Supply Drain	HUd	14	•	10		10		10		10	1	10	1	10	mAdc							,	1, 2, 3, 4, 5, 6, 11, 12		'	,	14		2
	Ipdl	14		4.2		4.2		4.2		4.2		4.2		4.2	mAdc						•		-	•			14		1, 2, 3, 4, 5, 7, 11, 12
Switching Parameters																	Pulse											1, 2, 4, 5,	t
Turn-On Delay	tpd-	3,8	-	r'	,	12	•		-		,	12		,	ns	3	8			_	-		-		14			6, 11, 12	
Turn-Off Delay	t pd+	3,8	•	1		10	,	1	۰.		1	10	1	1.	ns		80			-	•	•	-	•	14	1	1	1, 2, 4, 5, 6, 11, 12	7

TEST CURRENT/VOLTAGE VALUES